Listing of the claims:

1. (Currently Amended) An electrode element for plasma torches~~, in which~~ comprising:

at least one core forming ~~the actual~~ an electrode connected as a cathode, the core ~~is~~ made of one of a metal ~~or~~ and a metal alloy having a smaller work function ~~is~~ enclosed by a shell part made of one of a metal ~~or~~ and a metal alloy having a greater work function and thermal conductivity[,],and

~~characterized in that the~~ a boundary layer between ~~said~~ a core surface and said shell part ~~is~~ formed in a graded shape of solid solutions of ~~said~~ the two metals ~~or~~ and metal alloys, or an intermediate layer formed from another one of metal ~~or~~ and a metal alloy having a work function ~~being~~ greater than that of said core material ~~forms~~ formed toward said core surface and toward said shell part ~~each~~ with ~~its~~ boundary layers in a graded transition.

2. (Currently Amended) An electrode element according to claim 1, characterized in that said core is formed from, one of hafnium ~~or~~ and a hafnium alloy.

3. (Currently Amended) An electrode element according to claim 1, characterized in that said core is formed from one of tungsten, zirconium, ~~or~~ tantalum ~~or~~ and an alloy ~~of these elements~~ thereof.

4. (Currently Amended) An electrode element according to ~~any one of the preceding claims~~ claim1, characterized in that said shell part is formed from one of copper ~~or~~ and a copper alloy.

5. (Currently Amended) An electrode element according to ~~any one of the preceding claims~~ claim 1, characterized in that said intermediate layer is formed from one of silver ~~or~~ , and a silver alloy.

6. (Currently Amended) An electrode element according to ~~any one of the preceding claims~~ claim 1, characterized in that said core is formed in a rod-shaped manner with a circular cross-section.

7. (Currently Amended) An electrode element according to ~~any one of the preceding claims~~ claim 1, characterized in that said core is formed from a plurality of wire-shaped elements ~~being~~ twisted with each other.

8. (Currently Amended) An electrode element according to ~~any one of the preceding claims~~ claim 1, characterized in that said core comprises one of a star-shaped, annular cross-section ~~or in that said cross-section is~~ and a cross-shaped cross-section.

9. (Currently Amended) An electrode element according ~~to any one of the preceding claims~~ claim 1, characterized in that several cores being separately arranged to form said electrode.

10. (Currently Amended) An electrode element according to ~~any one of the preceding claims~~ claim 1, characterized in that said intermediate layer is formed from a powder.

11. (Currently Amended) An electrode element according to ~~any one of the preceding claims~~ claim 1, characterized in that within said shell part a single-sided open cavity which is connected to a cooling element is formed.

12. (Currently Amended) An electrode element according to ~~any one of the preceding claims~~ claim 1, characterized in that said electrode element is replaceably connected to a sleeve-shaped portion of copper.

13. (Currently Amended) A method for the production of an electrode element for plasma torches~~, characterized in that~~ comprising the steps of:

manufacturing said electrode element ~~is manufactured~~ applying by ~~the application of~~ compressive forces ~~with~~ using one of a shaping method ~~and/or~~ and a joining method ~~in the form of~~ using a sleeve-shaped part which forms a shell part ~~and~~ ~~is~~ made of one of a metal ~~or~~ and a metal alloy having a higher work function and a higher thermal conductivity and electrical conductivity; and

~~into which~~ introducing at least one core element made of one of a metal ~~or~~ and a metal alloy having a lower work function which forms said electrode and is connected as a cathode ~~has been introduced~~ into the shell part.

14. (Currently Amended) A method according to claim 13[,] wherein the step of manufacturing said electrode comprises the steps of:

~~characterized in that~~ manufacturing said electrode element ~~is manufactured~~ by one of extrusion molding ~~or~~ and hot isostatic pressing.

15. (Currently Amended) A method according to ~~claim 13 or~~ claim 14[,] further comprising the step of:

~~characterized in that~~ preheating at least up to 400 °C ~~is carried out~~ before extrusion molding.

16. (Currently Amended) A method according to ~~any one of claims 13 to 15, characterized in that~~ claim 14 further comprising the step of:

before extrusion molding, ~~said~~ filling a cavity between said sleeve-shaped part and said core element ~~is filled~~ for the formation of said intermediate layer with ~~another~~ one of a powdery metal ~~or~~ and a metal alloy having a work function, thermal conductivity and electrical conductivity ~~being~~ higher than said core material.

17. (Currently Amended) A method according to ~~any one of claims~~ claim 13 ~~to 16, characterized in that, for the formation of said one core~~ further comprising the step of:

twisting several wire-shaped elements ~~are twisted~~ with each other for the formation of said core.

18. (Currently Amended) A method according to ~~any one of claims 13 to 17, characterized in that,~~ claim 14 further comprising the step of:

before extrusion molding filling a ~~said~~ cavity of said core element formed in said sleeve shape ~~is filled~~ with one of a metal powder ~~of a metal or~~ and a metal alloy which has a work function being higher than said core material.

19. (Currently Amended) A method according to ~~any one of claims~~ claim 13 ~~to 18, characterized in that~~ comprising the steps of:

forming said shell part, said core ~~and/or~~ and said intermediate layer ~~form one or~~ as one common primary product each from a powder by ~~means of a~~ compression molding ~~method;~~, and

manufacturing said electrode element ~~is manufactured~~ at least one from one primary product ~~or several primary products~~ by ~~means of~~ extrusion molding.

20. (Currently Amended) A method according to claim 13~~, characterized in that said~~ further comprising the steps of:

manufacturing said primary ~~product(s) is (are) manufactured~~ product by cold isostatic pressing.

21. (Currently Amended) A method according to ~~any one of claims~~ claim 13 ~~to 20, characterized in that~~ comprising the steps of:

forming a contour ~~is formed~~ on ~~the~~ outer circumferential surface of said shell part for a positive joint with a sleeve-shaped copper part.

22. (Currently Amended) A method according to ~~any one of claims~~ claim 13 ~~to 21, characterized in that~~ further comprising the step of:

forming a single-sided open cavity ~~is formed~~ within said shell part by ~~means of~~ backward extrusion.